Swi3p is a component of SWI/SNF, present at two copies per complex. Swi3p is required for transcription of a diverse set of genes, including HO and Ty retrotransposons, and is also required for normal mating-type switching, recruitment of SWI/SNF to promoters by Gcn4p, and maintenance of the full structural integrity of the SWI/SNF complex. Swi3p has two domains which are essential for its function, a SWIRM domain at residues 311-395 and a SANT domain at residues 527-576. The steady-state level of Swi3p depends on functional Swi1p and Snf2p. swi3 null mutants are viable but grow slowly on glucose, are inositol auxotrophs, and are unable to grow aerobically on maltose, galactose or raffinose. swi3 mutants are also defective in mating-type switching and sporulation, and display reduced growth at mild alkaline pH. Swi3p is similar to Rsc8p and both are SWIRM domain proteins, which are predicted to mediate specific protein-protein interactions. The eukaryotic SWIRM domain family also includes Schizosaccharomyces pombe Spac23e2.02p and Spbc146.09cp, Arabidopsis thaliana protein ATSWI3A, Drosophila MOR, and human SMARCC1, SMARCC2, MYSM1 and AOF2. Swi3p is also similar to Arabidopsis thaliana AtSWI3B, Caenorhabditis elegans PSA-1 and PSA-4, and mouse SRG3.By regulating the structure of chromatin, chromatin remodeling complexes, all of which contain an ATPase as a central motor subunit, perform critical functions in the maintenance, transmission, and expression of eukaryotic genomes. The SWI/SNF chromatin remodeling complex is involved in DNA replication, stress response, and transcription, and binds DNA nonspecifically, altering nucleosome structure to facilitate binding of transcription factors. For some genes, transcriptional activators are able to target the SWI/SNF complex to upstream activation sequencesin the promoter. The SWI/SNF chromatin remodeling complex family contains two evolutionary conserved subclasses of chromatin remodeling factors, one subfamily includes yeast SWI/SNF, fly BAP, and mammalian BAF, and the other subfamily includes yeast RSC, fly PBAP, and mammalian PBAF. It appears that some human SWI/SNF subunits act as tumor suppressors and there is also evidence that human SWI/SNF subunits are involved in controlling cell growth via their interaction with other tumor suppressors. Expression of adenovirus E1A oncoproteins, which are regulators of cellular and viral transcription, in Saccharomyces cerevisiae requires the function of the SWI/SNF complex, and expression of E1A in wild-type cells leads to a specific loss of SWI/SNF dependent transcription. These results suggest that the SWI/SNF complex is a target of these oncoproteins in mammalian cells and that the disruption of normal cell cycle control by E1A may be due in part to altered activity of the SWI/SNF complex.